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Merten GmbH & Co. KG, Lösungen für intelligente Gebäude, Service Center, Fritz-Kotz-Straße 8, Industriegebiet Bomig-West, D-51674 Wiehl
Telefon: +49 2261 702-204
Telefax: +49 2261 702-136
E-Mail: servicecenter@merten.de
Internet: www.merten.de

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Bei technischen Fragen wenden Sie sich bitte an unsere InfoLine:

Telefon: +49 1805 212581* oder +49 800 63783640
Telefax: +49 1805 212582* oder +49 800 63783630
E-Mail: infoline@merten.de

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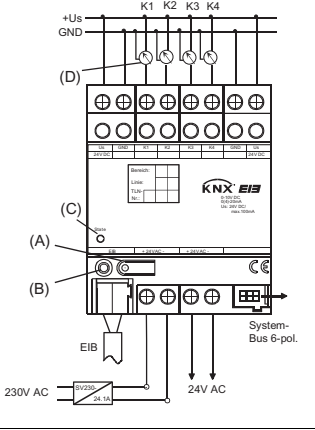
merten

Analogeingang REG-K/4fach	**682191**	**D**
Analogue input REG-K/4-gang (Application description attached)	**682191**	**GB**
Analoge ingang REG-K/4-voudig	**682191**	**NL**
Entrada analógica REG-K/4-gang	**682191**	**E**

1



merten

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Zu Ihrer Sicherheit

Achtung
Einbau und Montage elektrischer Geräte dürfen nur durch eine Elektrofachkraft erfolgen. Dabei sind die geltenden Unfallverhütungsvorschriften zu beachten. ·
Bei Nichtbeachtung der Installationshinweise können Brand oder andere Gefahren entstehen.·
Die Verwendung anderer, als von Merten zugelassener Verbindungsleitungen ist nicht gestattet und kann die elektrische Sicherheit sowie die Funktionalität des Systems negativ beeinflussen.

Systeminformation

Dieses Gerät ist ein Produkt des instabus-KNX/EIB-Systems und entspricht den KNX-Richtlinien. Detaillierte Fachkenntnisse durch instabus-Schulungen werden zum Verständnis vorausgesetzt.Die Funktion des Gerätes ist softwareabhängig. Detaillierte Informationen, welche Software geladen werden kann und welcher Funktionsumfang sich damit ergibt, sowie die Software selbst sind der Produktdatenbank des Herstellers zu entnehmen.Planung, Installation und Inbetriebnahme des Gerätes erfolgen mit Hilfe einer KNX-zertifizierten Software.Die Produktdatenbank sowie die technischen Beschreibungen finden Sie stets aktuell im Internet unter www.merten.de.

Funktion

- Der Analogeingang REG-K/4fach verarbeitet Messdaten von analogen Sensoren. Es können bis zu vier frei kombinierbare analoge Messwertaufnehmer angeschlossen werden.
- Der Analogeingang REG-K/4fach wertet sowohl Spannungs- als auch Stromsignale aus:
  Stromsignale 0...20 mA DC 4...20 mA DC
  Spannungssignale 0...1 V DC 0...10 V· DC
- Die Stromeingänge werden auf Drahtbruch überwacht.·
- Mit Hilfe eines Analogeingangsmoduls REG/4-fach Art.-Nr. 682192 können bis zu vier weitere analoge Sensoren angeschlossen und ausgewertet werden.

Montage

Achtung
Die Verwendung anderer als von Merten zugelassener Verbindungsleitungen ist nicht gestattet und kann die elektrische Sicherheit sowie die Funktionalität des Systems negativ beeinflussen.

Aufschnappen auf Hutprofilschiene 35 x 7,5 mm nach DIN EN 50022. Der Analogeingang REG-K/4fach benötigt zum Betrieb eine externe 24-V-Spannungsversorgung, z. B. Spannungsversorgung REG, AC 24 V/1 A, Art.-Nr 663629. Diese kann auch die angeschlossenen Sensoren, oder deren Heizung oder ein Analogeingangsmodul versorgen.

Anschluss, Bedienelemente (Bild ❶)

+Us:	Versorgung externer Messwertaufnehmer
GND:	Bezugspotential für +Us und Eingänge K1...K4
K1 ... K4:	Messwerteingänge
EIB:	EIB-Anschlussklemme
24 V AC:	externe Versorgungsspannung
System-Bus : 6-polig	Systemverbinder, 6-polig zum Anschluss eines Analogeingang-Erweiterungsmoduls

(A):	Programmier-Taste
(B):	Programmier-LED
(C):	Status-LED, dreifarbig (rot, orange, grün)
(D):	Messwertaufnehmer

Versorgung angeschlossener Sensoren

- Angeschlossene Sensoren können über die Klemmen +US und GND des Analogeingangs versorgt werden (siehe Bild ❶).
- Die Gesamtstromaufnahme aller hierüber versorgten Sensoren darf 100 mA nicht überschreiten. ·
- Die Klemmen +US und GND sind doppelt vorhanden und jeweils intern miteinander verbunden.
- Bei Kurzschluss zwischen +US und GND wird die Spannung abgeschaltet.
- Angeschlossene Sensoren können auch fremd versorgt werden (z. B. wenn deren Stromaufnahme 100 mA übersteigt). Der Anschluss an die Sensoreingänge erfolgt dann zwischen den Klemmen K1...K4 und GND.

Installation eines Erweiterungsmoduls

Bei der Installation von Erweiterungsmodulen sind folgende Grundregeln zu beachten:

- Es kann ein Analogeingangsmodul angeschlossen werden.
- Der Tausch eines Analogeingangsmoduls gegen eines vom selben Typ - z. B. bei einem Defekt - kann im laufenden Betrieb erfolgen (Modul spannungsfrei schalten!). Nach dem Tausch führt der Analogeingang REG-K/4fach nach ca. 25 s einen Reset durch. Dadurch werden alle Ein- und Ausgänge des Analogeingangs REG-K/4fach und der angeschlossenen Module neu initialisiert und in den Ursprungszustand versetzt.

- Das Entfernen oder Hinzufügen von Modulen ohne Anpassung der Projektierung und anschließendes Herunterladen in den Analogeingang REG-K/4fach ist nicht zulässig, da es zu Fehlfunktionen des Systems führt.

Anschließbare Sensoren

Bei Verwendung der nachfolgenden Messwertaufnehmer kann in der Software auf eine Voreinstellung zurückgegriffen werden. Bei Verwendung anderer Sensoren müssen die einzustellenden Parameter zuvor ermittelt werden.

Art	**Einsatz**	**Art.-Nr.**
Helligkeit	Außen	663593
Dämmerung	Außen	663594
Temperatur	Außen	663596
Wind	Außen	663591
Wind (mit Heizung)	Außen	663592
Regen	Außen	663595

Status-LED

Aus:	keine Spannungsversorgung
Orange / Ein:	Modulscan durch Analogeingang
Orange / blinkt schnell:	Modulscan REG-Erweiterungsmodul
Rot / Ein:	Fehler: Kein Projekt im Controller
Rot / blinkt langsam:	Fehler: Unterspannung an Erweiterungsbus
Rot / blinkt schnell:	Fehler: Fehler in Parametrierung
Grün / blinkt langsam:	Adressenvergabe, Modulscan abgeschlossen, Projektierung OK
LED Grün / blinkt schnell:	Parameter Download in die Module
LED Grün / Ein:	Modulscan abgeschlossen, alles OK

Langsam blinkend = 1/s; Schnell blinkend = 2/s

Technische Daten

Versorgung	
Versorgungsspannung:	24 V AC ±10 %
Stromaufnahme:	max. 250 mA
Spannung EIB:	24 V DC (+6 V / -4 V)
Leistungsaufnahme EIB:	typ. 150 mW
Umgebungstemperatur:	-5 °C bis +45 °C
Lager-/Transporttemp.:	-25 °C bis +70 °C
Feuchte Umgebung/Lager/ Transport:	max. 93% r. F., keine Betauung
Schutzart:	IP 20 nach DIN EN 60529
Einbaubreite:	4 TE / 70 mm
Gewicht:	ca. 150 g

Anschlüsse

Eingänge, Versorgung:	Schraubklemmen
eindrähtig	0,5 mm^2 bis 4mm^2
feindrähtig (o. Aderendhülse)	0,34 mm^2 bis 4 mm^2
feindrähtig (m. Aderendhülse)	0,14 mm^2 bis 2,5 mm^2
instabus EIB:	Anschluss- und Abzweigklemme
Erweiterungsmodul:	6-pol. Systemstecker

Sensoreingänge

Anzahl:	4x analog
auswertbare Sensorsignale (analog):	0 … 1 V DC, 0 … 10 V DC, 0 … 20 mA DC, 4 … 20 mA DC
Impedanz Spannungsmessung:	ca. 18 kΩ
Impedanz Strommessung:	ca. 100 Ω

Versorgung ext. Sensoren (+Us):	24 V DC. max.100 mA DC
Anschluss Erweiterungsmodule:	24 V DC, max. 80 mA

Technische Änderungen vorbehalten.

Safety warnings

Attention:
Electrical equipment must be installed and fitted by qualified electricians only and in strict observance of the relevant accident prevention regulations.·
Failure to observe any of the installation instructions may result in fire and other hazards.·
The use of connecting cables other than those approved by Merten is not permitted and can have a negative effect on electrical safety and system functions.

System information

This device is a product of the instabus-KNX/EIB system and complies with KNX directives. Detailed technical knowledge obtained in instabus training courses is a prerequisite to proper understanding.
The functionality of this device depends upon the software. Detailed information on loadable software and attainable functionality as well as the software itself can be obtained from the manufacturer's product database.

Planning, installation and commissioning of the unit is effected by means of KNX-certified software.

An updated version of the product database and the technical descriptions are available in the Internet at www.merten.de.

Function

- The analogue input processes measuring data from analog sensors. Up to four freely programmable analog transducers can be connected to the input.
- The analogue input evaluates both voltage and current signals:
  Current signals 0...20 mA DC 4...20 mA DC
  Voltage signals 0...1 V DC 0...10 V· DC
- The current inputs are monitored for wire breakage.·
- With the aid of an analogue input module REG/4-gang, part no. 682192, up to four other analog sensors can be connected and evaluated.

Installation

Safety warnings
The use of connecting cables other than those approved by Merten ist not permitted and can have a negative effect on electrical safety and system functions.

Snap the device onto a 35 x 7.5 top hat rail as per DIN EN 50022.

For operation, the EIB weather station needs an external 24 V source such as the power supply REG, AC 24 V/1 A, part no. 663629. The latter can also supply the sensors connected, or their heating or an analogue input module.

Connection, controls (Fig. ❶)

+Us:	power supply of external transducers
GND:	ref. potential for +Us and inputs K1...K4
K1 ... K4:	measured-value inputs
EIB:	EIB connecting terminal
24 V AC:	external power supply voltage
6-pole system bus:	system connector, 6-pole, for the connection of an analogue input module

(A): programming key
(B): programming LED
(C): status LED, three-colour (red, orange, green)
(D): transducer

Power supply of sensors connected

- All sensors connected can be supplied via terminals +US and GND of the analog input (refer to Fig. ❶).
- The total current consumption of all sensors supplied this way must not exceed 100 mA.
- Terminals +US and GND are provided in duplicate and are internally interconnected.
- In the event of a short-circuit between +US and GND, the voltage will be switched off.
- Sensors connected can also be supplied externally (e. g. if their current consumption exceeds 100 mA). In such case, connection to the sensor inputs must be made between terminals K1...K4 and GND.

Installing an extension module

Please observe the following basic rules when installing an extension module:

- An analogue input module can be connected.
- Replacement of an analogue input module (if defective) by one of the same type can be changed during operation (for this purpose, disconnect the module from the power supply). After replacement, the analog input will reset after approx. 25 s. This will re-initialize all inputs and outputs of the analog input and of the modules connected and reset them to their original state.
- Removing or adding modules without adapting their configuration and subsequent downloading into the analog input is not allowed as this will result in system malfunctioning.

Sensors suitable for connection

For any of the following transducers, the software provides preset values. If other sensors are used, the parameters to be set must be determined beforehand.

Type	Use	Part no.
Brightness	outdoor	663593
Twilight	outdoor	663594
Temperature	outdoor	663596
Wind	outdoor	663591
Wind (with heating)	outdoor	663592
Rain	outdoor	663595

Status LED

OFF:	no power supply
Orange/ON:	module scan via analog input
Orange/quickly blinking:	series-mounting unit (REG) extension module scan
Red/ON:	error: no configuration in controller
Red/slowly blinking:	error: undervoltage on extension bus
Red/quickly blinking:	error: wrong parameterization
Green/slowly blinking:	address assignment, module scan completed, configuration OK

Green/quickly blinking:	parameter download into modules
Green/ON:	module scan completed, everything OK

Slowly blinking = 1/s; quickly blinking = 2/s

Specifications

Power supply	
Supply voltage:	24 VAC ± 10 %,
Current consumption:	250 mA max.
EIB voltage:	24 VDC (+6 V / -4 V)
EIB power consumption:	150 mW typ.
Ambient temperature:	-5 °C to +45 °C
Storage/transport temperature:	-25 °C to +70 °C
Humidity	
Ambient/storage/transport:	93 % RH max., no condensation
Protective system:	IP 20 as per DIN EN 60529
Installation width:	4 pitch / 70 mm
Weight:	approx. 150 g

Connections	
Inputs, power supply:	screw terminals:
single-wire	0.5 mm^2 to 4 mm^2
stranded wire (without ferrule)	0.34 mm^2 to 4 mm^2
stranded wire (with ferrule)	0.14 mm^2 to 2.5 mm^2
instabus EIB:	connecting and branch terminal
Extension module:	6-pole system connector
Sensor inputs	
Number:	4x analog,
Evaluable sensor (signals analog):	0 .. 1 V DC, 0 .. 10 V DC, 0 .. 20mA DC, 4 .. 20mA DC

Voltage measurement impedance:	approx. 18 kΩ
Current measurement impedance:	approx. 100 Ω
External sensor power supply (+Us):	24 V DC, 100 mA max.
Extension module connection:	24 V DC, 80 mA max.

Subject to technical modifications.

Veiligheidsinstructies

Attentie!·
Inbouw en montage van elektrische apparaten mogen uitsluitend door een landelijk erkend installatiebedrijf worden uitgevoerd! Daarbij de geldende ongevallenpreventievoorschriften naleven. ·
Bij veronachtzaming van de installatie-instructies kunnen brand of andere gevaren optreden.·
Het gebruik van andere dan de door Merten goedgekeurde verbindingsleidingen is verboden en kan de elektrische veiligheid alsmede de functionaliteit van het systeem negatief beïnvloeden.

Systeeminformatie

Dit apparaat is een product van het instabus-KNX/EIB-systeem en voldoet aan de KNX-richtlijnen. Voor een goed begrip is gedetailleerde vakkennis door instabus-scholing een eerste vereiste.De werking van het apparaat is van de gebruikte software afhankelijk. Gedetailleerde informatie over de software die kan worden geladen en de functies die hiermee mogelijk zijn, alsmede informatie over de software zelf, vindt u in de productdatabase van de fabrikant.Planning, installatie en inbedrijfstelling van het apparaat geschieden met behulp van door de KNX-gecertificeerde software.De productdatabase en de technische beschrijvingen vindt u steeds actueel op internet onder www.merten.de

Functie

- De analoge ingang verwerkt meetgegevens van analoge sensors. Er kunnen maximaal vier vrij combineerbare analoge meetwaardeopnemers worden aangesloten.
- De analoge ingang analyseert zowel spannings- als stroomsignalen:

Stroomsignalen	0...20 mA DC	4...20 mA DC
Spanningssignalen	0...1 V DC	0..0,10 V· DC

- De stroomingangen worden op draadbreuk bewaakt.
- Met behulp van een analoge ingangsmoduul REG/4-vouding, art.-nr. 682192, kunnen maximaal vier extra analoge sensors aangesloten en geanalyseerd worden.

Montage

Veiligheidsinstructie
Het gebruik van andere dan de door Merten goedgekeurde verbindingsleidingen is verboden en kan de elektrische veiligheid alsmede de functionaliteit van het systeem negatief beïnvloeden.

Vastklikken op DIN-rail 35 x 7,5 mm conform DIN EN 50022.
Het EIB weerstation werkt op een externe 24-V-voeding, b.v. spanningsverzorging REG, AC 24 V/1 A, art.-nr. 663629. Deze kan ook de aangesloten sensors, of hun verwarming of een analoge ingangsmoduul voeden.

Aansluiting, bedieningselementen (afbeelding ❶)

+Us:	Voeding van externe meetwaardeopnemers
GND:	Referentiepotentiaal voor +Us en ingangen K1...K4
K1 ... K4:	Meetwaarde-ingangen
EIB:	EIB-aansluitklem
24V AC:	externe voedingsspanning
Systeem-bus: 6-polig	Systeemconnector, 6-polig voor aansluiting van uitbreidings-moduul met analoge ingang

(A): Programmeer-toets
(B): Programmeer-LED
(C): Status-LED, driekleurig (rood, oranje, groen)
(D): Meetwaardeopnemer

Voeding van aangesloten sensors

- Aangesloten sensors kunnen via de klemmen +US en GND van het analoge ingang gevoed worden (zie afbeelding ❶).
- De totale stroomopname van alle hierlangs gevoede sensors mag 100 mA niet overschrijden.
- De klemmen +US en GND zijn dubbel geïnstalleerd en intern verbonden.
- Bij kortsluiting tussen +US en GND wordt de spanning afgeschakeld.
- Aangesloten kunnen ook extern gevoed worden (b.v. wanneer hun stroomopname 100 mA overschrijdt). Aansluiting op de sensoringangen geschiedt dan tussen de klemmen K1...K4 en GND.

Installatie van een uitbreidingsmoduul

Bij het installeren van een uitbreidingsmoduul de volgende basisregels in acht nemen:

- Er kan een analoge ingangsmoduul met analoge ingang worden aangesloten.
- Vervanging van een uitbreidingsmoduul door een moduul van hetzelfde type - b.v. bij een defect - kan tijdens bedrijf geschieden (moduul spanningvrij schakelen!). Na vervanging voert het analoge ingang na ca. 25 s een reset uit. Daardoor woorden alle in- en uitgangen van het analoge ingang en de aangesloten modules opnieuw geïnitialiseerd en in de oorspronkelijke stand gezet.

- Verwijdering of toevoeging van modules zonder aanpassing van de configuratie en aansluitend downloaden naar het analoge ingang is niet toegestaan, omdat dit functiestoringen in het systeem veroorzaakt.

Aansluitbare sensors

Bij gebruik van de volgende meetwaarde-opnemers kan een softwarematige voorinstelling worden gehanteerd. Bij gebruikvan andere sensors moeten de in te stellen parameters van tevoren bepaald worden.

Meting	Plaats	Art.-nr.
Helderheid	buiten	663593
Schemering	buiten	663594
Temperatuur	buiten	663596
Wind	buiten	663591
Wind (met het verwarmen)	buiten	663592
Regen	buiten	663595

Status-LED

Uit:	geen voedingsspanning
Oranje / Aan:	Moduulscan door analoge ingang
Oranje / knippert snel:	Moduulscan DRA-uitbreidingsmoduul
Rood / Aan:	Fout: Geen project in controller
Rood / knippert langzaam:	Fout: Onderspanning op uitbreidingsbus
Rood / knippert snel:	Fout: Fout in parametrisering
Groen / knippert langzaam:	Adrestoewijzing, moduulscan voltooid, configuratie OK

LED groen / knippert snel:	Parameters worden downgeload naar de modules
LED groen / Aan:	Moduulscan voltooid, alles OK

Langzaam knipperend = 1/s; Snel knipperend = 2/s

Technische gegevens

Voeding	
Voedingsspanning:	24 V AC ±10 %,
Stroomopname:	max. 250 mA
Spanning EIB:	24 V DC (+6 V / -4 V)
Vermogensopname EIB:	typ. 150 mW
Omgevingstemperatuur:	-5 °C tot +45 °C
Opslag-/Transport-temperatuur:	-25 °C tot +70 °C

Vochtigheid Omgeving/ Opslag/Transport:	max. 93% rel. vo., geen vochtcondensatie
Beveiligingsgraad:	IP 20 conform DIN EN 60529
Inbouwbreedte:	4 moduul pitches / 70 mm
Gewicht:	ca. 150 g
Aansluitingen	
Ingangen, voeding:	schroefklemmen
enkeldraads	0,5 mm^2 - 4mm^2
fijndraads (zonder draadhuls)	0,34 mm^2 - 4 mm^2
fijndraads (met draadhuls)	0,14 mm^2 - 2,5 mm^2
instabus EIB:	aansluit- en aftakklem
Uitbreidingsmoduul:	6-pol. systeemstekker

Sensoringangen	
Aantal:	4x analoog
analyseerbare sensorsignalen (analoog):	0 .. 1 V DC, 0 10 V DC, 0 .. 20 mA DC, 4.. 20 mA DC
Impedantie spanningsmeting:	ca. 18 kΩ
Impedantie stroommeting:	ca. 100 Ω
Voeding ext. Sensors (+Us):	24 V DC. max. 100 mA DC
Aansluiting uitbreidingsmodules:	24 V DC, max. 80 mA

Technische wijzigingen voorbehouden.

Indicaciones de seguridad

¡Atención! ·
La instalación y el montaje de aparatos eléctricos solamente debe efectuar un electricista formado. El mismo ha de observar durante los trabajos mencionados las vigentes prescripciones preventivas de accidentes.
En caso de no observar las instrucciones de instalación existe peligro de incendios o de otros peligros.
No está permitido el uso de cables de conexión que no están admitidos por Merten. El uso de cables no admitidos puede repercutir negativamente en la seguridad eléctrica y en la funcionalidad del sistema.

Información de sistema

El equipo presente es un producto del sistema instabus KNX/EIB y cumple las directivas KNX. Para poder comprender el sistema se presuponen conocimientos especiales detallados adquiridos en medidas de capacitación instabus.
El funcionamiento del aparato depende del software. Consulte la base de datos de productos del fabricante para recibir información detallada de qué software puede cargarse y cuál será el funcionamiento que se puede lograr por tal software, así como para recibir el software mismo.
La planificación, la instalación y la puesta en funcionamiento del aparato se llevan a cabo con la ayuda de un software KNX certificado.
La base de datos de productos así como las descripciones técnicas más actuales se encuentran en internet en www.merten.de.

Funcionamiento

- La entrada analógica procesa datos de medición de sensores analógicos. Pueden conectarse hasta un máximo de cuatro registradores analógicos de datos libremente configurables.
- La entrada analógica puede evaluar tanto señales de tensión como señales de corriente:
  señales de corriente 0...20 mA DC 4...20 mA DC
  señales de tensión 0...1 V DC 0...10 V·DC
- Se vigilan las entradas de corriente con respecto a la rotura de conductores.
- Por medio de un módulo de entrada analógica REG/4-gang, n° de art. 682192 pueden conectarse y evaluarse hasta un máximo de cuatro sensores analógicos más.

Montaje

Indicación de seguridad
No está permitido el uso de cables de conexión que no están admitidos por Merten El uso de cables no admitidos puede repercutir negativamente en la seguridad eléctrica y en la funcionalidad del sistema

Montar a presión en carril omega 35 x 7,5 mm según DIN EN 50022. Para el servicio, la entrada analógica necesita una alimentación de tensión 24 V externa, por ej. fuente de alimentación REG, 24 V CA/1 A, n° de art. 663629. Dicho aparato puede también alimentar de corriente los sensores conectados o la calefacción de los mismos o un módulo de entrada analógica.

Conexión, elementos de mando (figura ❶)

+Us:	alimentación de registradores de datos externos
GND:	potencial de referencia para +Us y entradas K1...K4
K1 ... K4:	entradas de valores de medición
EIB:	borne de conexión EIB
24 V AC:	tensión de alimentación externa
Bus de sistema: 6 polos	conector de sistema, 6 polos, para la conexión de un módulo de entrada analógico de ampliación

(A):	tecla de programación
(B):	LED de programación
(C):	LED de estado, de tres colores (rojo, naranja, verde)
(D):	registrador de datos

Alimentación de sensores conectados

- Los sensores conectados pueden alimentarse de corriente por los bornes +US y GND de la entrada analógica (véase la figura ❶).
- El consumo total de corriente de todos los sensores así alimentados de corriente no debe sobrepasar los 100 mA.
- Los bornes +US y GND hay en versión doble, están interconectados internamente entre sí.
- En caso de cortocircuito entre +US y GND se desconecta la tensión.
- Los sensores conectados también pueden alimentarse de corriente de fuentes externas (por ej. si la potencia absorbida sobrepase los 100 mA). La conexión a las entradas de los sensores entonces se efectúa en los bornes K1...K4 y GND.

Instalación de un módulo de ampliación

Deben observarse las reglas básicas siguientes al instalar el módulo de ampliación:

- Puede conectarse un módulo de entrada analógica.
- La sustitución de un módulo de ampliación por un módulo del mismo tipo - por. ej. en caso de un defecto - se puede realizar durante el servicio activo (¡desconectar el módulo de la tensión!). Realizada la sustitución, la estación meteorológica efectúa un reset después de unos 25 s. Así se inicializan nuevamente todas las entradas y salidas de la estación meteorológica y de los módulos conectados y las ponen en el estado inicial.

- No está admitido quitar o añadir módulos sin adaptar la proyección y la descarga siguiente a la estación meteorológica, puesto que eso conduce a funciones erróneas del sistema.

Sensores conectables

Al utilizar los registradores de datos, se puede valerse en el software de valores previamente determinados. A utilizar otros sensores, los parámetros a ajustar deben determinarse previamente.

Tipo	Uso	No. de art.
Intensidad de luz	exteriores	663593
Crepúsculo	exteriores	663594
Temperatura	exteriores	663596
Viento	exteriores	663591
Viento (con la calefacción	exteriores	663592
Lluvia	exteriores	663595

LED de estado

Apagado:	ninguna alimentación de tensión
Naranja/con.:	escán de módulos por entrada analógica
Naranja/destellos rápidos:	escán de módulos, módulo de ampliación versión REG (montaje en carril)
Rojo/con.:	error: falta proyecto en el controlador
Rojo/destellos lentos:	error: baja tensión en el bus de ampliación
Rojo/destellos rápidos:	error: error en la parametrización

Verde/destellos lentos:	distribución de direcciones, escán de módulos terminado, proyección OK
LED verde/destellos rápidos:	descarga de parámetros a los módulos
LED verde/con.:	escán de módulos terminado, todo OK

Destellos lentos = 1/s; destellos rápidos = 2/s

Datos técnicos

Alimentación	
Tensión de alimentación:	24 V AC ±10 %,
Absorción de corriente:	máx. 250 mA
Tensión EIB:	24 V DC (+6 V / -4 V)
Potencia absorbida EIB:	típ. 150 mW
Temperatura ambiente:	-5 °C a +45 °C
Temperatura de almacenamiento/transporte:	25 °C a +70 °C
Humedad Ambiente/almacenamiento/ transporte:	máx. 93 % humedad rel., sin rociado
Grado de protección:	IP 20 según DIN EN 60 529
Anchura de instalación:	4 módulos / 70 mm
Peso:	aprox. 150 g

Conexiones	
Entradas, alimentación:	bornes roscados
de un hilo	0,5 mm² a 4 mm²
de hilo fino (sin terminal de conductor)	0,34 mm² a 4 mm²
de hilo fino (con terminal de conductor)	0,14 mm² a 2,5 mm²
instabus EIB:	borne de conexión y derivación
Módulo de ampliación:	enchufe de sistema de 6 polos
Entradas de sensor	
Número:	4 analógicas
señales de sensores evaluables (analógicas):	0 .. 1 V DC, 0 .. 10 V DC, 0.. 20 mA DC, 4.. 20 mA DC

impedancia, medición de tensión:	aprox. 18 kΩ
impedancia, medición de corriente:	aprox. 100 Ω
Alimentación de sensores exteriores (+Us):	24 V DC máx. 100 mA DC
Conexión de módulos de ampliación:	24 V DC máx. 80 mA

Reservadas modificaciones técnicas.

Application: Analog input B007

Executable from mask version: 7.1
Number of addresses (max): 200 **dynamic table handling** Yes ☒ No ☐
Number of assignments (max): 200 **maximum number of assignments** 200

Communication objects 50

Object no.		Function	Name	DP type	Format	Flags
→	0	Analog input	Alarm object [1]	1.001	1 bit	C, T
→	1 … 4	Analog input	Measuring value input 1 … 4 [3]	9.0xx	2 bytes	C, T
→	1 … 4	Analog input	Measuring value input 1 … 4 [3]	5.001	1 byte	C, T
→	5 … 12	Analog input	Limit value 1 / 2 input 1 … 4	1.001	1 bit	C, T
←	13 … 20	Analog input	External limit value 1 / 2 Input 1 … 4 [4]	9.0xx	2 bytes	C, W
←	13 … 20	Analog input	External limit value 1 / 2 Input 1 … 4 [4]	5.001	1 byte	C, W
→	21 … 24	Analog input	Open-circuit monitoring input 1 … 4 [2]	1.001	1 bit	C, T
→	25	Extension module	Alarm object [1] [5]	1.001	1 bit	C, T
→	26 … 29	Extension module	Measuring value input 5 [3] [5]	9.0xx	2 bytes	C, T
→	26 … 29	Extension module	Measuring value input 5 [3] [5]	5.001	1 byte	C, T
→	30 … 37	Extension module	Limit value 1 input 1 [5]	1.001	1 bit	C, T
←	38 … 45	Extension module	External limit value 1 / 2 Input 5 … 8 4) 5)	9.0xx	2 bytes	C, W
←	38 … 45	Extension module	External limit value 1 / 2 Input 5 … 8 [4] [5]	5.001	1 byte	C, W
→	46 … 49	Extension module	Open-circuit monitoring input 5 8 2) 5)	1.001	1 bit	C, T

[1] Objects are visible only if the "Alarm analog input" or "Alarm extension module" parameter is set to "Transmit alarm bit".

[2] Objects are visible only if open-circuit monitoring is active for an input with a 4 … 20 mA signal.

[3] Objects can optionally transmit 8-bit values or 16-bit values depending on the setting of the "Transmit format …" parameter.

[4] Objects can optionally receive 8-bit values or 16-bit values depending on the setting of the "Format of external limit-value object …" parameter.

[5] Objects are visible only if the "Extension module available" parameter is set to "Yes".

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Object description

	0, 25	Alarm object	1-bit object to indicate when on one of the inputs an overvoltage has been detected or when the voltage supply for external sensors has been overloaded. Object value = "0": no alarm Object value = "1": alarm
	1 … 4 26 … 29	Measuring value input...	1-byte object or 2-byte object for output of current measuring value.
	5 … 12 30 … 37	Limit value …	1-bit object to indicate when the limit values are exceeded or underrun.
	13 … 20 38 … 45	External limit value …	1-byte or 2-byte objects for limit value correction by other bus devices (e.g. touch sensor as value transmitter, visualization) These values overwrite the parameterized values.
	21 …25 46 … 49	Open-circuit monitoring	1-bit object for reporting whether a fault has occurred in the electrical connection of a sensor with 4 … 20 mA signal. The value of the object for open-circuit monitoring is presettable.

1 Functional Description

1.1 Measuring value settings

Among the most important settings is the decision, whether the measuring values are to be transmitted as 8-bit or as 16-bit values. The choice is basically dependent on the other devices working with the data. 8-bit values can be processed by many devices, although with limited resolution. 16-bit values are perfectly suited for display purposes, e.g. in visualization software. They have a significantly higher resolution.

These settings are made on the "Measuring value …" parameter filecard

1.2 Measuring value settings

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These settings are made on the "Measuring value …" parameter filecard

When 8-bit values are used, the following parameters are available: "Measuring value for 0% of measuring signal" and "Measuring value for 100% of measuring signal".

If the measuring values are to be transmitted as 8-bit values, an ouput value between 0 and 255 can be selected for the minimimum and the maximum value of the analog input range respectively. The minimum output value must be less than the maximum output value.

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1.3 Transmission criteria

The values measured can be transmitted automatically after a value has changed or after a certain period has elapsed since the last telegram.

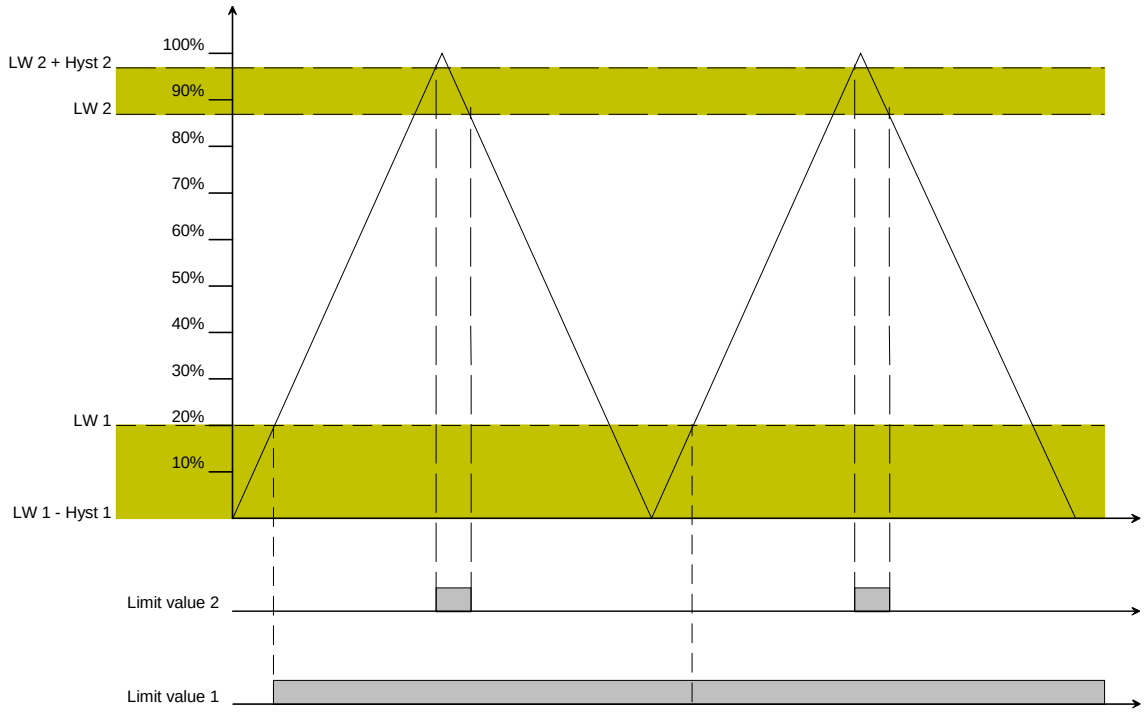
To prevent unnecessary loading of the bus, the parameter "Transmit measured value after a change by..." can be used to define how big the change must be for a telegram to be transmitted. The selection offered is "0.5%", "1%", "3%", "10%" and "no transmission".

If the measured values are to be transmitted cyclically, the cycle time is preset with the parameter "Cyclical transmission factor". In conjunction with the fixed base of 10 seconds, factors from 0 to 255 permit the selection of cycling times up to 42.5 minutes. Factor 0 means no cyclical transmission of measured values.

1.4 Limit values and hysteresis

For each analog measuring value, the analog input / analog sensor interface has two limit values which can be preset on the parameter filecard "Input …". For each limit value there is a parametrizable hysteresis with the possibility of fixing the response when the value is exceeded or not reached.

Example:



The limit values and the hysteresis characteristics are specified as a percentage of the full measuring range. When setting the limit values and the pertaining hysteresis, a safety margin of about 1% from the minimum value (0%) and from the maximum value (100%) should be observed. Or else the signals cannot underrun or exceed the respective thresholds. In this case, the limit-value object can transmit at maximum one telegram as shown for limit value 1.

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1.5 External limit values

If the parameter "External limit-value object …" is set to "Yes", the ETS shows an additional communication object that can be used for changing the preset limit value during operation. The following parameter "External limit-value format …" determines whether 16-bit floating point values or 8-bit percentage values are to be transmitted to this communication object.

In both cases, it is necessary to limit the predefined values in the devices used as limit-value transmitters in such a way that in consideration of the hysteresis a corresponding safety margin is always ensured.

An external value overwrites the internal value. Only after a new download of the project will the internal value be reactivated. A readout of the object values yields correct results only after data have been written into the objects at least once via the bus after a reset.

1.6 Alarm in case of overvoltage or overload

A common alarm object can be activated for the four inputs of the analog input / analog sensor interface in case of an overvoltage at an input or if an overload occurs at the terminal for the supply of the sensors. This communication object does not permit drawing conclusions on the direct cause of the fault.

If the analog input / analog sensor interface is connected to an analog input module, a separate alarm object is available for this extension module.

2 Connection of analog weather sensors

The analog input / analog sensor interface can also be connected to weather sensors sensing each a separate physical quantitiy. For these analog weather sensors, the following data point types of the communication objects are defined in the KNX standard:

Sensor	**Unit**	**Data point type**
Brightness	lux	9.004
Twilight	lux	9.004
Wind	m/s	9.005
Temperature	°C	9.001
Humidity	% r.h.	9.007
Air pressure	Pa	9.006

The parameter settings described in the following sections permit a simple adaptation to the respective measuring ranges. The limit and hysteresis values indicated are to be considered as typical examples which can be easily adapted to the special situation in the building.

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2.1 Wind speed

For determination of the wind force, the wind sensor is equipped with a vane which is heated as a protection against icing. The measuring range of the sensor covers 0 … 40 m/s. For use with the analog input / analog sensor interface, the following parameters are recommended:

Parameter	Setting	corresponds to
Measuring value for 0% of the measuring signal:	0	0 m/s
Measuring value for 100% of the measuring signal:	4000	40 m/s
Measuring range factor:	0.01	
Limit value 1:	25 %	10 m/s
Hysteresis 1:	8 %	3.2 m/s
Limit value 2:	30 %	12 m/s
Hysteresis 2:	8 %	3.2 m/s

2.2 Brightness

The brightness sensor is equipped with a probe which is normally installed in vertical position in front of the building wall. The measuring range of the sensors covers 0 … 60,000 lux. For use with the analog input / analog sensor interface, the following parameters are recommended:

Parameter	Setting	corresponds to
Measuring value for 0% of the measuring signal:	0	0 lux
Measuring value for 100% of the measuring signal:	+6000	60000 lux
Measuring range factor:	10	
Limit value 1:	33%	20000 lux
Hysteresis 1:	5%	3000 lux
Limit value 2:	83%	50000 lux
Hysteresis 2:	5%	3000 lux

2.3 Twilight

The twilight sensor is equipped with a probe which is normally installed in vertical position in front of the building wall. The measuring range of the sensors covers 0 … 255 lux. For use with the analog input / analog sensor interface, the following parameters are recommended:

Parameter	Setting	corresponds to
Measuring value for 0% of the measuring signal:	0	0 lux
Measuring value for 100% of the measuring signal:	+25500	255 lux
Measuring range factor:	0,01	
Limit value 1:	40 %	100 lux
Hysteresis 1:	10 %	25 lux
Limit value 2:	80 %	200 lux
Hysteresis 2:	10 %	25 lux

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2.4 Temperature

The temperature sensor senses the temperature of the ambient air. The measuring range of the sensor extends from –30 to +70 °C. For use with the analog input / analog sensor interface, the following parameters are recommended:

Parameter	**Setting**	**corresponds to**
Measuring value for 0% of the measuring signal:	–3000	–30°C
Measuring value for 100% of the measuring signal:	+7000	+70°C
Measuring range factor:	0,01	
Limit value 1:	30 %	0 °C
Hysteresis 1:	2 %	2 K
Limit value 2:	35 %	5 °C
Hysteresis 2:	2 %	2 K

2.5 Rain

The rain sensor is equipped with a meandering conductor track and evaluates the conductivity of rain water. For use with the analog input / analog sensor interface, the following parameters are recommended:

Parameter	**Setting**	**corresponds to**
Measuring value for 0% of the measuring signal:	0	
Measuring value for 100% of the measuring signal:	+1000	
Measuring range factor:	0,01	
Limit value 1:	60 %	Regen
Hysteresis 1:	20 %	Kein Regen
Limit value 2:		
Hysteresis 2:		

Contrary to the other weather sensors, the rain detector does not supply analog measuring values but toggles between 0 volt and 10 volts so that displaying an analog value makes no sense. For this reason, the object "Measuring value" should not transmit neither in case of a change at the input nor cyclically.

The settings for 0% of the measuring range, 100% of the measuring range and the measuring range factor are necessary for the limit value detection to function properly. The suggested parameters for the limit value ensure that the switching threshold is always safely detected.

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2.6 Humidity

The humidity sensor senses the relative humidity of the air and the room temperature. Both measuring values are made available in the form of analog voltages. The measuring ranges of the sensor extend from 0 to 100 % of relative humidity and from –30 to +70 °C. For use with the analog input / analog sensor interface, the following parameters are recommended:

Parameter	**Setting**	**corresponds to**
Measuring value for 0% of the measuring signal:	0	0 % r. h.
Measuring value for 100% of the measuring signal:	10000	100 % r. h.
Measuring range factor:	0,01	
Limit value 1:	40 %	40 % r. h.
Hysteresis 1:	5 %	5 % r. h.
Limit value 2:	70 %	70 % r. h.
Hysteresis 2:	5 %	5 % r. h.
Measuring value for 0% of the measuring signal:	–3000	–30°C
Measuring value for 100% of the measuring signal:	+7000	+70°C
Measuring range factor:	0,01	
Limit value 1:	50 %	20 °C
Hysteresis 1:	2 %	2 K
Limit value 2:	55 %	25 °C
Hysteresis 2:	2 %	2 K

2.7 Air pressure

For an air pressure sensor with an input range of 70.000 … 120.000 Pa which is converted to 0 … 10 volts, the following parameters are recommended for use with the analog input / analog sensor interface:

Parameter	**Setting**	**corresponds to**
Measuring value for 0% of the measuring signal:	7000	700 hPa
Measuring value for 100% of the measuring signal:	12000	1200 hPa
Measuring range factor:	10	
Limit value 1:	60 %	1000 hPa
Hysteresis 1:	2 %	10 hPa
Limit value 2:	64 %	1020 hPa
Hysteresis 2:	4 %	20 hPa

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3 Connection of an analog input module

An analog input module permits enlarging the number of analog sensors from four to eight.

3.1 Settings of the analog input module

The device software offers the same settings for the four channels of the analog input module as for the four inputs of the analog input.

A common alarm object can be activated for all inputs of the analog input module. This object is activated, for instance, in case of an overvoltage at one of inputs or if an overload occurs at the terminal for the supply of the sensors. This communication object does not permit drawing conclusions on the direct cause of the fault.

3.2 Electrical connection

During the installation of an analog input module, the following points must be observed:

- Only one analog input module can be connected to the device.
- If defective, an analog input module can be replaced by one of the same type while the system is in operation (disconnect voltage supply from module!). After the replacement, the analog input makes a reset after abt. 25 s.. This action re-initializes all inputs and outputs and resets them to their original state.
- Removal or addition of modules without adapting the project and subsequent downloading into the analog input is not permitted as this will result in system malfunctions.
- The U_S and GND terminals of the analog input module must not be connected to the corresponding terminals of another device, e.g. of the analog input, to prevent problems caused by ground loops.
- Sensors connected to the inputs of the analog input module must not get their power supply from the analog input. Sensors connected to the inputs of the analog input must not get their power supply from the analog input module.

4 Commissioning

The analog input / analog sensor interface is programmed with the help of the ETS.

Initialization / status indication

After switching on the device for the first time the analog input / analog sensor interface starts a module scan (status LED: "Orange / on"). As a new device comes by default without configuration, the status LED switches thereafter to "Red / flashing fast".

A connected analog input module shows that it is ready for operation by setting its own status LED to "Flashing fast".

After downloading a project into the analog input/ analog sensor interface, the status LED shows "Green / on". The module switches its own status LED off.

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Parameter		
Description	**Values**	**Remarks**
General parameters		
Signal input …	No sensor Sensor 0 … 10V Sensor 0 … 1V Sensor 0 … 20mA Sensor 4 … 20mA	This parameter determines whether a sensor and which sensor is connected to one of the inputs. The format and the scaling factor of the measuring values for the sensor types can be set on a special parameter filecard. On another filecard, two limit values per input and the response when exceeded or underrun can be adjusted.
Open-circuit detection	**No detection** continuity = 0, open-circuit = 1 continuity = 1, open-circuit = 0	When a sensor with 4 … 20mA ouput is used, this parameter permits reporting if the electrical connection is interrupted. This is done by enabling a 1-bit communication object.
Alarm analog input	**No transmission** Transmit alarm bit	An alarm message can be transmitted if the device detects a fault in one of the analog inputs or in the sensor supply. When the parameter is set to "Transmit alarm bit", the "Alarm object" is activated.
Extension module	**No** Yes	This parameter determines whether an analog input module is used in addition. In this case, further parameter cards and communication objects for the four inputs of the extension module are activated.
Extension module		
Signal input …	No sensor Sensor 0 … 10V Sensor 0 … 1V Sensor 0 … 20mA Sensor 4 … 20mA	The parameter determines whether a sensor is connected to one of the inputs and what type of sensor. The format and scaling of the measuring values for the sensor types can be adjusted on a special parameter filecard. Two limit values per input can be fixed and the reactions when exceeded and when not reached be defined on another card.
Alarm extension module	No transmission Transmit alarm bit	An alarm can be transmitted, if the device detects a fault in one of the four analog inputs or in the supply of the sensors. If the parameter is set to "Transmit alarm bit" the "alarm object" is activated.

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Measuring value		
Measuring value transmission format	**16-bit EIS5** 8-bit EIS6	The parameter defines whether the measuring values of this input are transmitted in the form of signed floating point numbers or as unsigned relative values. Depending on this parameter, further parameters for the adaptation and scaling of measuring values are shown.
Measuring value format = 16-bit value		
Measuring value for 0% of measuring signal Measuring value for 100% of measuring signal Measuring range scaling factor	-32768 … (**0**) … 32767 -32768 … (**1000**) … 32767 **x 0.01** x 0.1 x 1 x 10 x 100	With the three parameters "Measuring value for 0%", " Measuring value for 100%" and "Factor" of measuring range, the analog input / analog sensor interface can adapt itself to the actual measuring range of the sensor used. To achieve a high resolution, the two base values should be selected in such a way that a good coverage of the measuring range of the sensor is obtained with a scaling factor as low as posssible
Measuring value format = 8-bit value		
Base value 0% of measuring value Base value 100% of measuring value	**0** … 255 0 … **255**	With these two parameters, the analog input / analog sensor interface can convert the analog input signal to value range of the 1-byte communication object.
Transmit measuring value in the event of a change by...	No transmission 0.5% 1% **3%** 10%	The parameter defines the percentage of change required with respect to the previous object value for the new value to be transmitted. In a sensor with a measuring range extending from 0 … 10V, a measuring value difference of 3% corresponds to 0.3V. When the last telegram had a value of 4V, a new telegram will be transmitted when the actual measuring value is below 3.7V or above 4.3V. If "No transmission" is selected, the measuring value is transmitted only cyclically or after a WRITE request.
Measuring value cyclical transmission factor (base 10s, 0 = no cyclical transmission)	**0** … 120	The parameter fixes the time after which the actual measuring value is being transmitted, even if the difference with the respect to the previous value has not yet been reached. In the "0" standard setting, the measuring value is not transmitted cyclically.

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Input …		
Limit value … (in % of measuring range) Limit value hysteresis … Limit value (LV) activation …	0 … 100% 0 … 100% above LV = ON, below LV-hysteresis = OFF above LV = OFF, below LV-hysteresis = ON below LV = ON, above LV+hysteresis = OFF below LV = OFF above LV+hysteresis = ON	These three parameters define the thresholds which – when exceeded or underrun – generate the corresponding switching telegrams. To make sure the thresholds can be safely execceded or underrun it is necessary to respect a reasonable safety margin from the extreme values of 0% and 100% when selecting the limit values and the hysteresis.
External limit value object LV …	Yes **No**	The parameter defines whether an object for external change of the limit value is to be activated.
Format of external limit value object LV …	**16-bit EIS5** 8-bit EIS6	The parameter enables either a 2-byte or a 1-byte object which permits changing the limit value while in operation.
Limit value cyclical transmission factor (base 10s, 0 = no cyclical transmission)	**0** … 120	The parameter fixes the time after which the actual limit value is being transmitted. In the "0" standard setting, the limit value is not transmitted cyclically.

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